

Work Order ID 162989

Tuesday, June 20, 2017 11:09:46 AM

162989**U/R**OK of 17/6/20
Page 1**Item ID:** D117-762-041

Accept

N900040100Setup Start ***NS1*****Revision ID:** URF 17-547Stop ***NS2*****Item Name:** Replacement Skidtube**Start Date:** 6/26/2017 **Start Qty:** 1.00***1*****Cust Item ID:****Required Date:** 7/7/2017 **Req'd Qty:** 1.00***1*****Customer:****Reference:****Approvals:****Process Plan:****Date:** JUN 20 2017**Tooling:****Date:**Run Start ***NR1*****QC:****Date:****SPC (Y/N):****Date:**Stop ***NR2*****Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool #****Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp****Draw Nbr****Revision Nbr**

D3582

D

100

Document Control

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile & type labels per PPP D117-762-041 CHG002

N/A

B162989

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

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Item ID: D117-762-041

Accept

N900040100

Setup Start

NS1

Revision ID: URF 17-547

Stop

NS2

Item Name: Replacement Skidtube

Start Date: 6/26/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 7/7/2017 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

0.00

130

Skidtubes

Skidtubes

Memo

1.02

Skidtubes

1-Cut Aft end using DT8185

2-Deburr ends

3-Drill Aft Cap holes using DT8678 *** OPEN AFT CAP HOLE TO .187" ***

4-Locate DT 8973 from aft cap holes & Drill Ground wire hole on top of Tube.

5-Install 3/16 cleco in Ground wire hole ,then drill all X-Bolt holes using 3/16" drill.

6-Drill pilot holes for wearplates using DT8900

7-Open wearplate holes to Ø19/64" (0.297") as per Dwg D3582.

8- open ground wear holes to 0.391" as per section B-B

9-Open Aft Cap holes using .209" drill.

10-Drill pilot holes for section D-D and E-E. Holes must be laid out by hand. Mark out Center line and make sure that 6.65 and 5.906 measurements are respected. Double check before drilling, do not open holes to finish size.

11- Open hole to 0.755" as per dwg and Section F-F for swaging and deburr per QSI002.

06170621

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : _____			

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Setup Start *NS1*
Stop *NS2*

Cust Item ID:
Customer:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run	Start	*NR1*
	Stop	*NR2*

140

140

Skidtubes

Skidtubes

Skidtubes

Memo

1-Weld fwd cap D2964 per dwg D3582 and OSI 004
A/R AL ROD Batch: M2364.58/mc
2-Grind flush

0.38

0.00

150

150

QC

Quality Control

QC10- Inspect visual per QSI004- ground welds

Memo

0.00

160

160

QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

0.00

0.02

DAS
 38
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Page 4

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Item Name: Replacement Skidtube

Start Date: 6/26/2017 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 7/7/2017 **Req'd Qty:** 1.00 *** 1 ***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/
Work Center ID

Operation Description

Set Up/ Run Hours

Tool ID**Tool #****Plan
Code**

Accept Qty

Reject Qty

Reject Number

**Insp.
Stamp**

170

Chemical Conversion Coat per QSI005 4.1

0.00

170

HandFinish

Memo

0.78

Hand Finishing

180

QC7-Inspect Chemical Conversion Coat

0.00

180

QC

Memo

0.01

Quality Control

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Item ID: D117-762-041
Revision ID: URF 17-547
Item Name: Replacement Skidtube

Accept

N900040100Setup Start ***NS1***Stop ***NS2***Start Date: 6/26/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 7/7/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

190

0.00

190

Skidtubes

Skidtubes

Skidtubes

Memo

0.83

***MASK OFF HOLES OF SECTION F-F (DO NOT C'SINK)

1-Open X-Bolt holes to finish size as per Dwg D3582, sections D-D, E-E

2-Counter Sink X-BOLT holes as per Dwg D3582 D-D AND E-E ONLY

3-Deburr and blow out chips from inside of tube, prep. tube for welding.

4-Bond web as per Dwg D3582 & QSI 015

A/R 241 Sike Flex Batch: 137526
Exp Date: 1801-21

5- Swage x-bolt spacer as per dwg and Section F-F QSI002

6-Weld x-bolt spacers as per Dwg D3582 section D-D, E-E and G-G.

A/R AL ROD Batch: 1136920

7-Grind welds flush



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Item ID: D117-762-041 **Accept** ***N900040100*** **Setup Start *NS1***
Revision ID: URF 17-547 **Stop *NS2***
Item Name: Replacement Skidtube
Start Date: 6/26/2017 **Start Qty:** 1.00 ***1*** **Cust Item ID:**
Required Date: 7/7/2017 **Req'd Qty:** 1.00 ***1*** **Customer:**
Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start *NR1***
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200 *200* QC Quality Control	QC10- Inspect visual per QSI004- ground welds Memo	0.00 0.00				1			JB 17-07-03
210 *210* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.02				1			JB 17-07-03
215 *215* HandFinish Hand Finishing	Pressure Wash per QSI005 4.3 Memo Touch-up alodine as per QSI	0.00 0.49				(x1)	0		2017 07/03 BETB

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Item ID: D117-762-041
Revision ID: URF 17-547
Item Name: Replacement Skidtube

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 6/26/2017 Start Qty: 1.00 *1*
Required Date: 7/7/2017 Req'd Qty: 1.00 *1*

Cust Item ID:
Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220 *220* Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum <i>M137176</i> Memo START TIME <i>11:05</i> OVEN TEMPERATURE <i>300°</i> FINISH TIME: <i>11:35</i>	0.00 0.20				<i>1</i>	<i>0</i>	<i>17073</i>	<i>34 989</i>
230 *230* QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.01				<i>1</i>			<i>2B</i> <i>17-0703</i>

*235

INSTALL Doubler kit
AS PER DSI 9775-011

★ SEE Attached

TW 17-06-29

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Item ID: D117-762-041**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:** URF 17-547**Stop*****NS2*****Item Name:** Replacement Skidtube**Start Date:** 6/26/2017 **Start Qty:** 1.00***1*****Cust Item ID:****Required Date:** 7/7/2017 **Req'd Qty:** 1.00***1*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start*****NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop*****NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250	HandFinishing	0.00							
250	HandFinish								
Hand Finishing	Memo	1.55							
	1-Inspect for Foreign objects								
	2-Install Aft cap as per Dwg D3582, Detail "C"								
	A/R 241 Sika Flex Batch: <u>M137526</u>								
	Exp Date: <u>18106</u>								
	3-Install Wearplates as per Dwg D3582 ,								
	Note:Install Bolt and washer on Ground Wire inserts on top of tube see								
	section D-D of dwg D3582								
	*****Do not install bolts where indicated on Dwg(Note #6)*****								
	A/R 241 Sika Flex Batch: <u>M137526</u>								
	Exp Date: <u>18106</u>								
	4- Wing Walk as per Dwg D3582 and QSI 005 4.4								
260	QC5- Inspect part completeness to step on W/O	0.00							
260	QC								
Quality Control	Memo	0.02							

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Item ID: D117-762-041
Revision ID: URF 17-547
Item Name: Replacement Skidtube

Accept***N900040100*****Setup Start *NS1*****Stop *NS2***

Start Date: 6/26/2017 **Start Qty:** 1.00 ***1***
Required Date: 7/7/2017 **Req'd Qty:** 1.00 ***1***

Cust Item ID:**Customer:****Reference:**

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run Start *NR1***Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270		0.00							
270	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D117-762-041 Location :FG081								
280	QC21- Final Inspection - Work Order Release	0.00							
280									
QC	Memo	0.10							
Quality Control									

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JUL 05 2017

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21
9-89

JUL 05 2017

Picklist Print

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Work Order ID: 162989

162989

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 6/26/2017

Required Date: 7/7/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A07.06.11New Issue EC
IPP Rev:B 08-02-22 change to revA as per dwg DD verF by:EC IPP REV:C
15.06.11 AS PER CHG002 DD VERF:JLM IPP REV:D 16.02.05
DWG REV.C (ecn16-514) DD VERF:JLM IPP REV:E 17.01.17 as per dwg
REV.D DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D5304-1 *D5304-1* Crossbolt Spacer		Manufactured	No			190	Each	5.0000	2	2			
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					LG001			5					
					145050			4					
					146516			1					
D3582-1-BENT *D3582-1-BFNT* Skidtube Assembly BK117		Manufactured	No			130	Each	7.0000	1	1			
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					LG002			7					
					158024			7					
D2964 *D2964* Cap		Manufactured	No			140	Each	7.0000	1	1			
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					LG001			7					
					153488			1					
					158161			6					

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Picklist Print

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Work Order ID: 162989

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Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 6/26/2017

Required Date: 7/7/2017

Start Qty: 1.00

Required Qty: 1.00

D2965 Manufactured No 250 Each 33.0000 1 1

D2965

Cap

**

20 1202105

Location

Loc Qty

Loc Code

FP001

33

127852

33

X1

D2971 Manufactured No 190 Each 31.0000 1 1

D2971

Cross Bolt Spacer

**

BE170628

Location

Loc Qty

Loc Code

LG001

31

155918

31

1

D3584-1 Manufactured No 190 Each 7.0000 1 1

D3584-1

Web

**

BE170627

Location

Loc Qty

Loc Code

LG002

7

156926

7

1

D3662-3 Manufactured No 190 Each 61.0000 1 1

D3662-3

Crossbolt Spacer

**

BE170628

Location

Loc Qty

Loc Code

LG001

61

105725

11

71026

3

81606

47

1

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

Picklist Print

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Work Order ID: 162989

162989

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 6/26/2017

Required Date: 7/7/2017

Start Qty: 1.00

Required Qty: 1.00

D3662-1 Manufactured No

190 Each 9.0000 3 3

D3662-1

Crossbolt Spacer

**

BE170628

Location

Loc Qty

Loc Code

LG001

9

155760

3

158369

6

3

ALS4-1032-130 AELS4-1032-130 Purchased No

250 Each 7,556.000 36 36

AI S4-1032-130

Rivnut

**

17/07/04

Location

Loc Qty

Loc Code

CCK007

5000

M137820

5000

FG

100

FG

M135442

50

M136579

50

FP001

2295

M133077

3

M136579

2292

X36

st555

161

M136579

161

ALS4-428-165 Purchased No

250 Each 71.0000 2 2

AI S4-428-165

INSERT

**

17/07/04

Location

Loc Qty

Loc Code

FG

10

117769

10

FP001

61

m136986

31

m137054

30

X2

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																																																										
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

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Page 4

Work Order ID: 162989

162989

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 6/26/2017

Required Date: 7/7/2017

Start Qty: 1.00

Required Qty: 1.00

D3508-3 Manufactured No

250 Each 1.0000 1 1

D3508-3

Wearplate Fwd Center

**

all 17/07/08

Location

Loc Qty

Loc Code

FP002

1

B162556

155923

1

xl

D3508-9 Manufactured No

250 Each 1.0000 1 1

D3508-9

Wearplate Fwd

**

all 17/07/08

Location

Loc Qty

Loc Code

FP002

1

B162544

155922

1

xl

D3558-3 Manufactured No

250 Each 9.0000 1 1

D3558-3

Gasket Center Fwd

**

all 17/07/08

Location

Loc Qty

Loc Code

FG

1

89649

1

FP001

8

144377

8

xl

D3558-9 Manufactured No

250 Each 4.0000 1 1

D3558-9

Gasket Fwd

**

all 17/07/08

Location

Loc Qty

Loc Code

FG

1

80340

1

FP001

3

157633

3

xl

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																																																										
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

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Page 5

Work Order ID: 162989

162989

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 6/26/2017

Required Date: 7/7/2017

Start Qty: 1.00

Required Qty: 1.00

D3558-11

Manufactured No

250

Each

9.0000

1

1

D3558-11

Gasket Aft Center

**

all 12/02/01

Location

Loc Qty

Loc Code

FG

1

80339

1

FP001

8

157593

2

158572

6

21

D3558-13

Manufactured No

250

Each

14.0000

1

1

D3558-13

Gasket Aft

**

all 12/02/01

Location

Loc Qty

Loc Code

FG

1

82380

1

FP001

13

157515

8

158233

5

~~B158152~~

21

D3508-11

Manufactured No

250

Each

6.0000

1

1

D3508-11

Wearplate Aft Center

**

all 12/02/01

Location

Loc Qty

Loc Code

FP002

6

155905

2

158148

4

B155239

21

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐								
		OTHER : _____							

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Work Order ID: 162989

162989

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 6/26/2017

Required Date: 7/7/2017

Start Qty: 1.00

Required Qty: 1.00

D3508-13 Manufactured No

250

Each

3.0000

1

1

D3508-13

**

Wearplate Aft

Location

Loc Qty

Loc Code

FP001

3

143628

1

158152

2

NAS1149D0332J Purchased No

250

Each

1,069.000

2

2

NAS1149D0332.J

**

Washer

Location

Loc Qty

Loc Code

FP

211

m136015

8

m137075

203

GA

272

m136643

272

ST264

586

m136015

0

m137412

26

m137736

560

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
☐ OTHER : _____					

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Page 7

Work Order ID: 162989

162989

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 6/26/2017

Required Date: 7/7/2017

Start Qty: 1.00

Required Qty: 1.00

AN3C4A

Purchased

No

250

Each

808.0000

28

28

AN3C4A

**

all 12/02/01

Bolt

Location

Loc Qty

Loc Code

FG

20

122814

20

FP001

153

M136450

23

M136740

8

M136986

20

M137075

43

M137164

2

M137361

57

OVER002

600

M137507

150

M137587

250

M137820

200

ST350

35

M135704

35

X28

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : ☐							
Misidentified ☐	Past Due ☐								

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Work Order ID: 162989

162989

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 6/26/2017

Required Date: 7/7/2017

Start Qty: 1.00

Required Qty: 1.00

AN3C5A

Purchased

No

250

Each

938.0000

2

2

AN3C5A

**

Bolt

Location

Loc Qty

Loc Code

FG

5

122800

5

FP001

660

M136182

1

M136579

2

M137361

657

OVER002

200

M137710

200

ST350

73

M134676

1

M135442

72

x2

NAS1149D0416J

Purchased

No

250

Each

3,496.000

2

2

NAS1149D0416.I

**

WASHER

Location

Loc Qty

Loc Code

GA

610

m131511

610

ST264

2886

m131511

2886

x2

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DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By: _____ Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : _____			

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Work Order ID: 162989

162989

Parent Item: D117-762-041

D117-762-041

Parent Item Name: Replacement Skidtube

Start Date: 6/26/2017

Required Date: 7/7/2017

Start Qty: 1.00

Required Qty: 1.00

NAS1149C0332R

Purchased

No

250

Each

3,020.000

28

28

NAS1149C0332R

WASHER

**

all 12/02/06

Location

Loc Qty

Loc Code

FP001

1470

m137597

1470

x28

GA

514

m133284

22

m136444

492

ST266

1036

m137381

1036

AN4-4A

Purchased

No

250

Each

29.0000

2

2

AN4-4A

BOLT

**

all 12/02/06

Location

Loc Qty

Loc Code

over003

20

m137061

20

ST346

9

m137391

9

x2

CR3524-S-3 x⁹⁵80 B: M137878

D5514-1 x2 B: 162996

D5517-1 x2 B: 162802

> JW 17-07-04

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					

Root Cause			FAULT CATEGORY		
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐				

PARTS LIST FOR D3582-041 SKIDTUBE ASSEMBLY

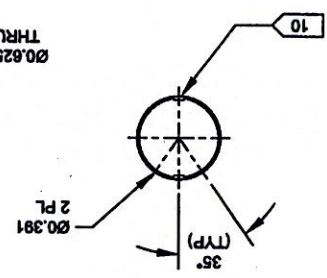
Qty	Part Number	Description
X	D3582-041	SKIDTUBE ASSEMBLY
1	D2962-150	EXTRUSION
1	D2964	CAP
1	D2966	CAP
1	D2971	CROSS BOLT SPACER
1	D3506-3	WEARPLATE
1	D3506-9	WEARPLATE
1	D3506-11	WEARPLATE
1	D3506-13	WEARPLATE
1	D3558-3	GASKET
1	D3558-9	GASKET
1	D3558-11	GASKET
1	D3558-13	GASKET
1	D3584-1	WEB
3	D3662-1	CROSS BOLT SPACER
1	D3662-3	CROSS BOLT SPACER
2	D3904-1	CROSS BOLT SPACER
36	AL5-1032-130	INSERT
2	AL57-428-165	INSERT
28	AN3C4	BOLT
2	AN3-5A	BOLT
2	AN-4A	BOLT
28	NA51149C0332R	WASHER (AN660C10L)
2	NA51149D0332J	WASHER (AN660D10L)
2	NA51149D0416J	WASHER (AN660D416L)

- NOTES:
- 1) MATERIAL: N/A
 - 2) FINISH: CHEMICAL CONVERSION COAT PER QSI 005 4.1 PRIOR TO INSERTING D3584-1 WEB. POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.1) PER DART QSI 005 4.3.
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
 - 5) BREAK SHARP EDGES: N/A
 - 6) IDENTIFICATION: N/A
 - 7) WEIGHT: 17.5 lbs
 - 8) INSERT: D3584-1 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015 AFTER BONDING.
 - 9) USE DART DRILL TEMPLATE D18900 TO LOCATE AND DRILL (20.297 HOLES (36 PLACES) AFTER WEARSHOE INSERTS. INSTALL AELS-1032-130 PER SECTION G-G (36 PLACES) AFTER FINISH. SEAL WEARPLATE BOLTS WITH SIKAFLEX-241/291.
 - 10) DO NOT INSTALL AN3C4 BOLTS AND NA51149C0332R WASHERS IN INDICATED LOCATIONS.

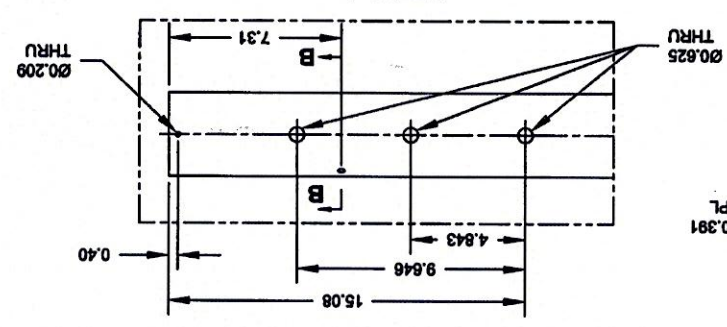
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2017-01-16
UFR 17-547 ML
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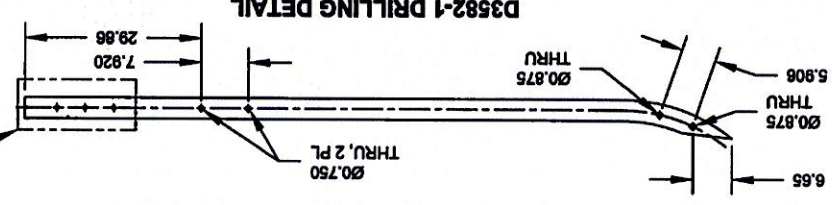
SECTION B-B SCALE 5X



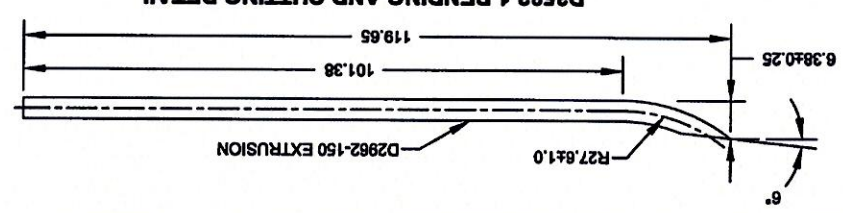
DETAIL A SCALE 5X



D3582-1 DRILLING DETAIL



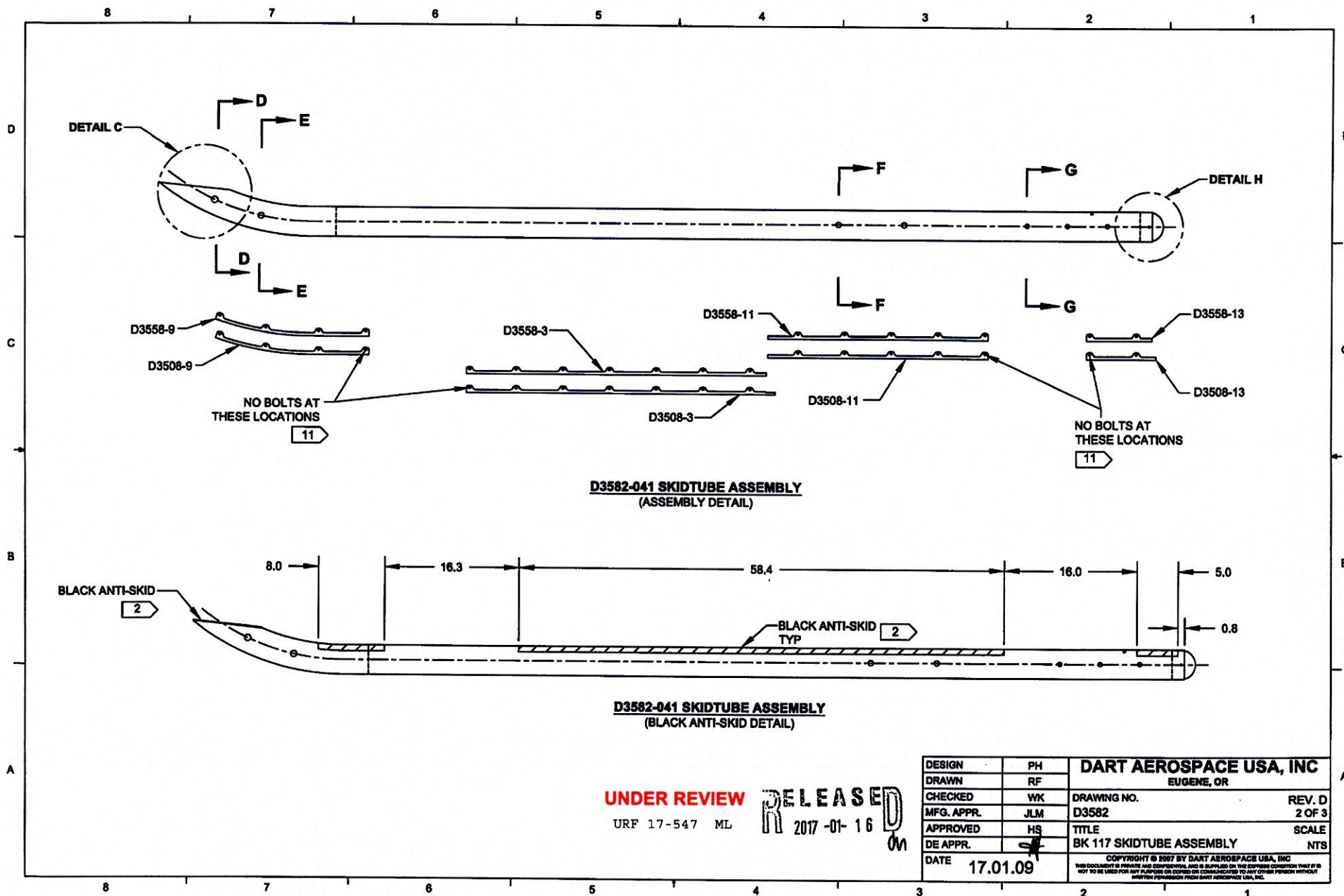
D3582-1 BENDING AND CUTTING DETAIL



REV.	DESCRIPTION	DATE
A	NEW ISSUE	17.01.09
B	D3582-A-1 (ZN D5-1), FORMATTED TO CURRENT STD	
C	D3492 PLUG ASSEMBLY REMOVED, REFORMAT	
D	SECTION NOTES (ZN B7-3, A8-3), REF NC16-160	

DESIGN	PH	RF	WK	JLM	HS	DATE
DART AEROSPACE USA, INC						17.01.09

REV.	DATE	BY	DATE
1	07.06.08	PH	
2	15.02.20	RF	
3	15.11.02	AP	
4	17.01.09	RF	



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MFG. APPR.	JLM	D3582	2 OF 3
APPROVED	HS	TITLE	SCALE
DE APPR.		BK 117 SKIDTUBE ASSEMBLY	NTS
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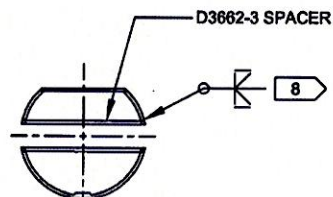
D2964 CAP
(GRIND FLUSH)

DETAIL C

D2971 SPACER

SECTION D-D SCALE 3X

- SECTION D-D NOTES**
AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:
1. CHAMFER HOLE 0.030 x 45°
 2. INSERT D2971 SPACER
 3. WELD INTO PLACE AND GRIND FLUSH
 4. PASS Ø0.750 DRILL TO REMOVE SPILL OVER



SECTION E-E SCALE 3X

- SECTION E-E NOTES**
AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:
1. CHAMFER HOLE 0.030 x 45°
 2. INSERT D3662-3 SPACER
 3. WELD INTO PLACE AND GRIND FLUSH
 4. PASS Ø0.672 DRILL TO REMOVE SPILL OVER

D5304-1 SPACER
2 PL

SECTION F-F SCALE 3X 2 PL

- SECTION F-F NOTES**
AFTER BENDING AND DRILLING ASSY
PERFORM THE FOLLOWING:
1. INSERT D5304-1 SPACER
 2. SWAGE TO Ø0.565 +0.005/-0.000 X 1.0
DEEP PER QSI 002
 3. OPEN THRU HOLE TO Ø0.625
 4. GRIND FLUSH

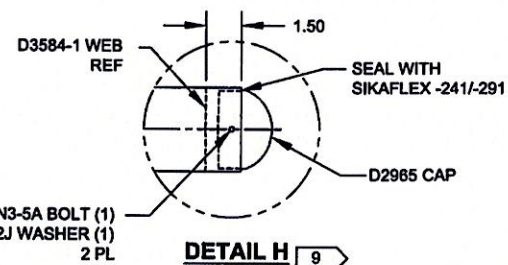
10 AFTER FINISH, INSTALL
AELS-1032-130
INSERT 36 PL

AN3C4A BOLT (1)
NAS1149C0332R WASHER (1)
28 PL

SECTION G-G SCALE 3X

- SECTION G-G NOTES**
AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING:
1. CHAMFER HOLE 0.030 x 45°
 2. INSERT D3662-1 SPACER (3 PLACES)
 3. WELD INTO PLACE AND GRIND FLUSH
 4. PASS Ø0.515 DRILL TO REMOVE SPILL OVER

AFTER FINISH, INSTALL
ALS7-428-165 INSERT (1)
AN4-4A BOLT (1)
NAS1149D0416J WASHER (1)
2 PL



AN3-5A BOLT (1)
NAS1149D0332J WASHER (1)
2 PL

DETAIL H

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DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D117-762 REV. E AND EARLIER AND
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D117-762 REV. 4 AND EARLIER

REF. FAA STC: SR01853SE
REF. TCCA: LOA RDIMS-4374899
REF. EASA STC: 10017063
REF. DGAC MEXICO STC: IA-376/2016

1.0 PURPOSE

It has come to Dart's attention that the D117-762-041 and D145-762-045 Skidtubes at CHG 002 and prior, and D145-762-043 Skidtubes at CHG 005 and prior, may experience hole elongation around the ground handling lugs when certain styles of ground handling equipment (particularly the ground handling equipment with wheels positioned aft of the rear ground handling lug) are used to tow the aircraft over rough terrain.

The purpose of this Dart Service Instruction (DSI) is to provide customers with a repair procedure to modify their existing skidtubes to prevent elongation and/or to restore skidtubes with elongated ground handling holes.

Skidtubes that are acceptable candidates for this repair procedure must have a maximum ground handling hole elongation of 1.05" (26.7 mm) once the hole is cleaned up and deburred. Skidtubes that have a ground handling hole elongation greater than 1.05" (26.7 mm) must be removed from service and replaced. Reference Figure 1 of this service instruction.

2.0 INSTALLATION PROCEDURE

NOTE: The skidtube is manufactured with an internal vertical I-beam and great care must be taken not to damage it during installation of the D5514-1 Doublers (hereinafter referred to as doubler(s)).

NOTE: D117-762-045 Float Skidtubes may have been modified to include the installation of hose support brackets. If the location of the hose support brackets interfere with the installation of the doubler it is acceptable to relocate the hose support brackets more forward or more aft on the skidtube. Do not reposition the hose support bracket higher on the skidtube as this will result in damage to the internal I-beam. Plug existing holes with the same part number of rivets that were removed.

NOTE: Mark the location and orientation of each doubler when transfer drilling and ensure that the doublers are positioned in the same manner when fastening the doublers to the skidtube. Use the forward ground handling lug hole (if it is still fully intact and undamaged) to assist with correctly placing the doublers.

- 2.1 To facilitate this modification, remove the skidtube from the aircraft per ICA-D117-762 Chapter 32.1 / 32.7 / 32.9.
- 2.2 Remove and discard both ground handling lugs and associated hardware from the skidtube.
- 2.3 Remove the crossbolt spacers only if they are loose.
- 2.4 Deburr all holes and ensure that the outer surface of the skidtube is uniform and smooth. Do not remove any more material than necessary around the hole.
- 2.5 Ensure that the doubler is properly positioned on the skidtube. Test fit the doubler and D5517-1 Ground Handling Pins (hereinafter referred to as pin(s)). Reference Figure 2 of this service instruction.
- 2.6 Transfer mark Qty (38) holes from each doubler to the skidtube and ensure there is a minimum edge distance of 0.241" (6.1mm) between the edge of the elongated hole and the center of the transfer mark. Reference Figure 3 of this service instruction.
- 2.7 Drill Qty (38) Ø0.161" (#20) holes at each transfer mark location into the skidtube. Deburr all holes.
- 2.8 Touch up all bare aluminum on the skidtube with a chemical conversion coating per MIL-DTL-5541. (Alodine 1201)

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DESIGN	ML	DART AEROSPACE USA, INC	
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MFG. APPR.	N/A	DSI 9775	SHEET 1 OF 4
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- 2.9 Apply a 0.010" (0.3mm) thick layer of Proseal 890 B1/2 or Proseal 1422 B1/2 to the inner surface of one doubler.
- 2.10 Using cleco clamps, secure the doubler onto one side of the skidtube.
- 2.11 Liberally coat the shoulder on one end of each pin with Proseal 890 B1/2 or Proseal 1422 B1/2 and insert that end through the skidtube into the doubler.
- 2.12 Liberally coat the shoulder on the other end of the pins with Proseal 890 B1/2 or Proseal 1422 B1/2.
- 2.13 Apply a 0.010" (0.3mm) thick layer of Proseal 890 B1/2 or Proseal 1422 B1/2 to the inner surface of the second doubler.
- 2.14 Using cleco clamps, secure the second doubler onto the other side of the skidtube.
- 2.15 Ensure that both doublers are flush against the surface of the skidtube.
- 2.16 Ensure that the doublers and pins remain properly aligned per Figure 2 of this service instruction.
- 2.17 Using CR3524-5-3 Rivets, secure both doublers to the skidtube. Reference Figure 3 of this service instruction
- 2.18 Remove all excess Proseal.
- 2.19 Relocate the float hose support brackets if necessary.
- 2.20 Reinstall the modified skidtube onto the aircraft per ICA-D117-762 Chapter 32.2 / 32.8 / 32.10.
- 2.21 Repeat steps 2.1 thru 2.20 on the other skidtube.
- 2.22 Update the aircraft log book as applicable to indicate installation of the DSI 9775-011 Skidtube Doubler Kit.

3.0 PARTS LIST

The DSI 9775-011 Skidtube Doubler Kit contains the parts required to modify Qty (2) skidtubes.

*Qty (8) additional rivets are provided with the kit.

Qty -011	Part Number	Description
X	DSI 9775-011	SKIDTUBE DOUBLER
4	D5514-1	DOUBLER
4	D5517-1	GROUND HANDLING PIN
*160	CR3524-5-3	RIVET, COUNTERSUNK

4.0 WEIGHT AND BALANCE

When the DSI 9775-011 Skidtube Doubler Kit is installed on both skidtubes, there is a net weight increase as stated in the following table.

Installation	Weight	LATERAL		LONGITUDINAL	
		Arm	Moment	Arm	Moment
DSI 9775-011 SKIDTUBE DOUBLER KIT	2.2 lb 1.0 kg	0 in 0 m	0 in-lb 0 m-kg	180 in 4.6 m	396 in-lb 4.6 m-kg

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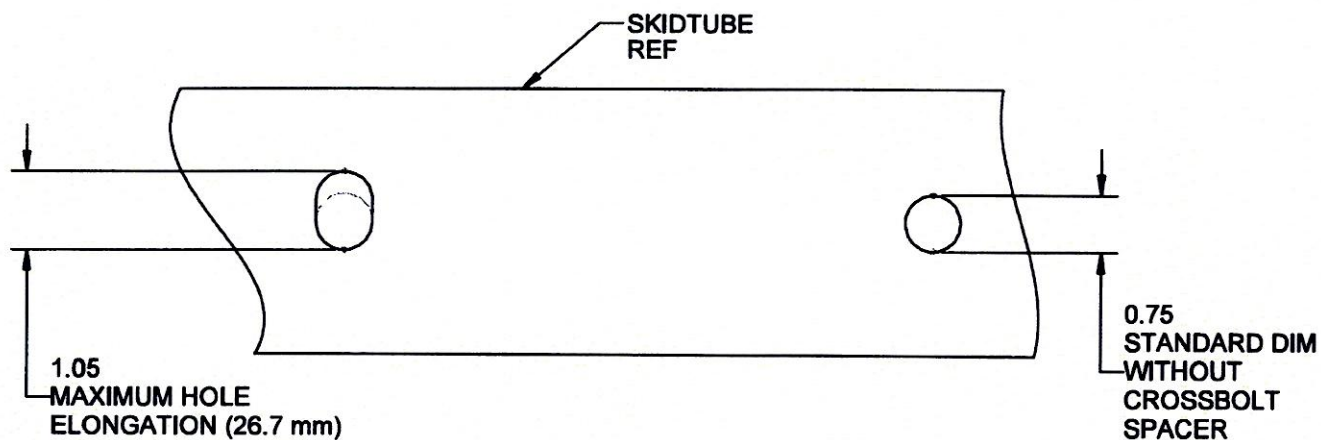


FIGURE 1
HOLE ELONGATION

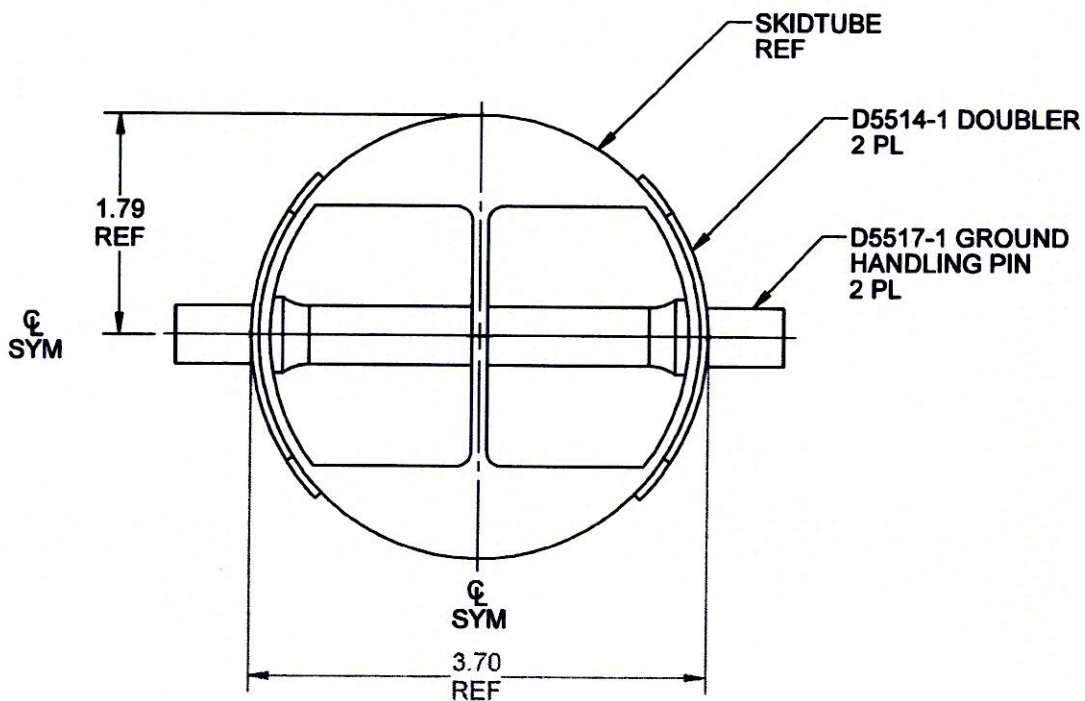


FIGURE 2
DOUBLER INSTALLATION
(SHOWN WITH CROSSBOLT SPACER REMOVED)

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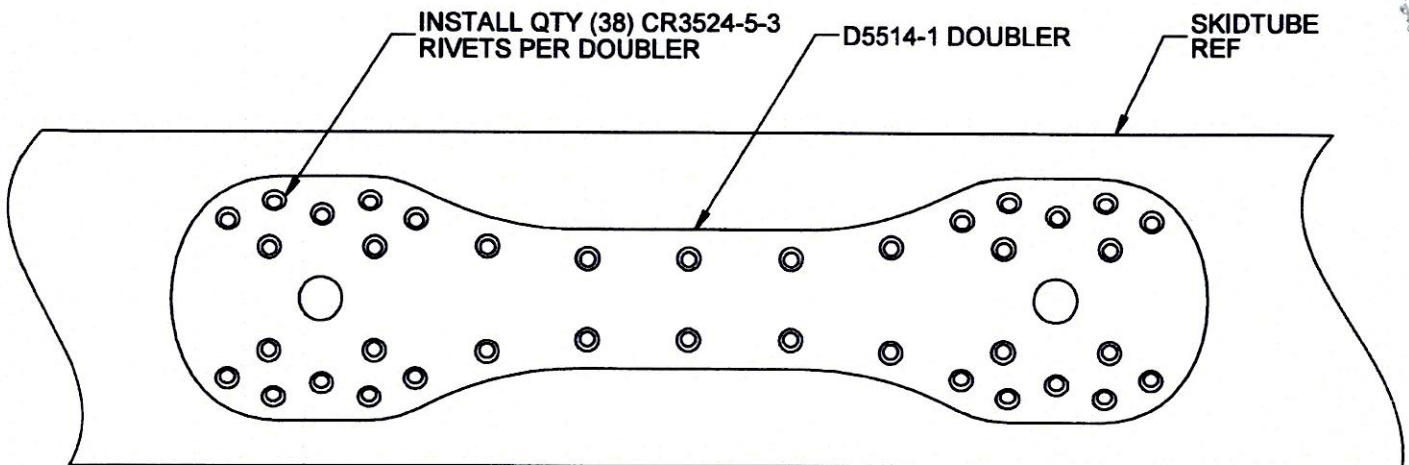
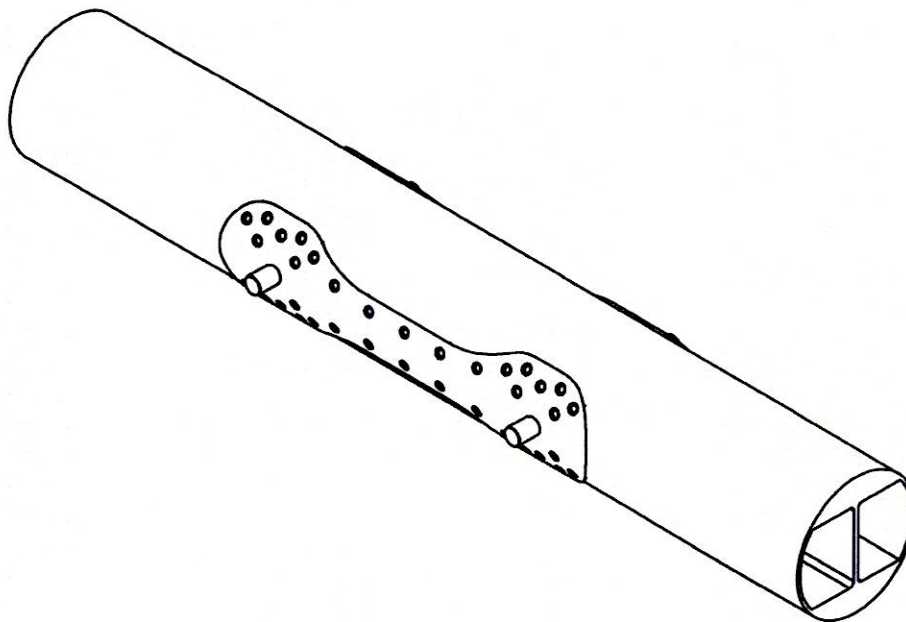


FIGURE 3
RIVET INSTALLATION

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DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: <u>162989</u> Part No. <u>D117-762-041</u> NCR No. _____		DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																															
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Description Work Order Deviation <u>Complete conflicts with riveted doubler.</u>				Disposition <u>Acceptable to notch DSS14-1 Doubler and trim gasket to allow assembly</u> <u>Margin of safety per SR-D117-762-5 is 0.88 for Rivet shear, assuming 1 less rivet (conservative) reduces strength by 4%. Sufficiently strong by inspection.</u>																																																																			
				Completed By <u>JW 17-06-29</u> Lead hand / Supervisor Approval Verification <u>JW 17-06-29</u>																																																																			
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Root Cause <table style="width:100%;"> <tr> <td>Environment ☐</td> <td>No Re-verification ☐</td> </tr> <tr> <td>Design ☐</td> <td>Operator ☐</td> </tr> <tr> <td>Doc/Data ☐</td> <td>Offset/Setup ☐</td> </tr> <tr> <td>Equip/Tooling ☐</td> <td>Supplier ☐</td> </tr> <tr> <td>Handling/Pre ☐</td> <td>Training ☐</td> </tr> <tr> <td>Material ☐</td> <td>Use for Testing ☐</td> </tr> <tr> <td>Internal Transport ☐</td> <td>Poor Information ☐</td> </tr> <tr> <td>Tribal Knowledge ☐</td> <td>Rushing ☐</td> </tr> <tr> <td>LOA ☐</td> <td>Product Improvement ☐</td> </tr> <tr> <td>Substation ☐</td> <td>Process Improvement ☐</td> </tr> <tr> <td>Past Expiry Date ☐</td> <td>Manufacturing Process ☐</td> </tr> <tr> <td>Misidentified ☐</td> <td>Past Due ☐</td> </tr> </table>				Environment ☐	No Re-verification ☐	Design ☐	Operator ☐	Doc/Data ☐	Offset/Setup ☐	Equip/Tooling ☐	Supplier ☐	Handling/Pre ☐	Training ☐	Material ☐	Use for Testing ☐	Internal Transport ☐	Poor Information ☐	Tribal Knowledge ☐	Rushing ☐	LOA ☐	Product Improvement ☐	Substation ☐	Process Improvement ☐	Past Expiry Date ☐	Manufacturing Process ☐	Misidentified ☐	Past Due ☐	FAULT CATEGORY <table style="width:100%;"> <tr> <td>Pressure/Forced ☐</td> <td>Temperature/Cure ☐</td> <td>Power Loss/Surge ☐</td> <td>Positioned Wrong ☐</td> </tr> <tr> <td>Bending ☐</td> <td>Set-up ☐</td> <td>Folio/Program ☐</td> <td>Outside Dimensions ☐</td> </tr> <tr> <td>Centre Not Concentric ☐</td> <td>BOM/Route ☐</td> <td>Grain ☐</td> <td>Over/Under tolerance ☐</td> </tr> <tr> <td>Cracks ☐</td> <td>Broken/Damage/Defect ☐</td> <td>Weld ☐</td> <td>Part Incorrect ☐</td> </tr> <tr> <td>Crimp/Kink/Ripple/Wave ☐</td> <td>Inspection Incomplete/Unqualified ☐</td> <td>Wrong Stock Pulled ☐</td> <td>Part Lost/Missing ☐</td> </tr> <tr> <td>Cuffs ☐</td> <td>Contamination ☐</td> <td>Out of Sequence ☐</td> <td>Part Moved ☐</td> </tr> <tr> <td>Crushing ☐</td> <td>Countersink ☐</td> <td>Off-set ☐</td> <td>Drawing ☐</td> </tr> <tr> <td>Heat Treat ☐</td> <td>Cut Too Short ☐</td> <td>Mislabeled ☐</td> <td>Finish ☐</td> </tr> <tr> <td>Wave/Twist in Tube ☐</td> <td>Instructions Incomplete/Unclear ☐</td> <td>Fit/Function ☐</td> <td>Misread ☐</td> </tr> <tr> <td>Marks/Chatter ☐</td> <td>Drill Holes ☐</td> <td>Misaligned/off center ☐</td> <td>Turning Sequence ☐</td> </tr> </table>				Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
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